217/782-2113

CONSTRUCTION PERMIT - NSPS SOURCE

PERMITTEE

Marathon Ashland Petroleum LLC
Attn: John S. Swearingen
Marathon Avenue
Robinson, Illinois 62454

Application No.: 01090064 I.D. No.: 033808AAB
Applicant's Designation: Date Received: September 26, 2001
Subject: Crude Asset Reliability Project
Date Issued: February 28, 2002
Location: Marathon Avenue, Robinson

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a crude asset reliability project, that is, various changes to the refinery's crude unit to improve its reliability, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1.0 Unit Specific Conditions

1.1 Unit: Crude Asset Reliability Project

1.1.1 Description

The proposed project will improve crude unit reliability by replacing pumps and valves; changing metallurgy in heat exchangers, piping circuits, and fixed equipment; changing the atmospheric distillation tower auxiliaries to eliminate tower top reflux; installing advanced process controls; and installing bypasses around heat exchangers to allow on-line cleaning. As a part of this project, the existing crude atmospheric heater (1F-1) will be modified.

Additionally, a selective catalytic reduction (SCR) system will be installed on the existing crude atmospheric heater (1F-1).

Accompanying this project, Heaters 1F-2, 8F-1, 23F-1, 87F-103, 90F-1, and 90F-2 will be debottlenecked. Several other heaters will realize an increase in utilization.

1.1.2 List of Emission Units and Air Pollution Control Equipment

Emission Unit	Description	Emission Control Equipment
1F-1	Crude Atmospheric Heater	SCR
1F-2	Crude Vacuum Heater	None
8F-1	Sat Gas #1 Debutanizer Reboiler	None
23F-1	Sat Gas #2 Debutanizer Reboiler	None
87F-103	Special Coker Heater	None
90F-1	Regular Coker Heater	None
90F-2	Regular Coker Preheater	None

1.1.3 Applicability Provisions and Applicable Regulations

a. An "affected heater" for the purpose of these unit-specific conditions is each fuel gas combustion device listed in condition 1.1.2.

b. i. This permit is issued based upon the affected heater 1F-1 being subject to the NSPS for Petroleum Refineries, 40 CFR 60 Subparts A and J. The Illinois EPA administers the NSPS for subject sources in Illinois pursuant to a delegation agreement with the USEPA.

ii. The Permittee shall not burn in the affected heaters any fuel gas that contains hydrogen sulfide (H_2S) in excess of 230 mg/dscm (0.10 gr/dscf) [40 CFR 60.104(a)(1)].

Note: Although only the heater 1F-1 is subject to 40 CFR 60 Subpart J, this condition requires all affected heaters to meet the 0.1 gr/dscf standard.

c. i. The Permittee shall not cause or allow the emission of smoke or other particulate matter, with an opacity greater than 20 percent, into the atmosphere from the affected heater 1F-1 except as provided below [35 IAC 212.122(a)].

ii. The emission of smoke or other particulate matter from the affected heater 1F-1 may have an opacity greater than 20 percent but not greater than 40 percent for a period or periods aggregating 3 minutes in any 60 minute period, providing that such opaque emission allowed during any 60 minute period shall occur from only one such emission unit located within a 305 m (1000 ft) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions allowed from each such emission unit shall be limited to 3 times in any 24 hour period [35 IAC 212.122(b)].

d. i. The Permittee shall not cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent, into the atmosphere from the affected heaters 1F-2, 8F-1, 23F-1, 87F-103, 90F-1, and 90F-2 except as provided below [35 IAC 212.123(a)].

ii. The emission of smoke or other particulate matter from the affected heaters 1F-2, 8F-1, 23F-1, 87F-103, 90F-1, and 90F-2 may have an opacity greater than 30 percent but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided that such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within a 305 m (1000 ft) radius from the center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in any 24 hour period [35 IAC 212.123(b)].

1.1.4 Non-Applicability of Regulations of Concern

The source has addressed the applicability and compliance of 40 CFR 52.21, Prevention of Significant Deterioration (PSD) (See Attachments 1 and 2). The limits established by this permit are intended to ensure that the modification addressed in this construction permit does not constitute a major modification pursuant to these rules.

1.1.5 Operational and Production Limits and Work Practices

a. The firing rate of the affected heaters shall not exceed the following:

Heater	Firing Rate (mmBtu/Hr, LHV, 12-Month Rolling Average)
1F-1	483
1F-2	90
8F-1	52
23F-1	41
87F-103	98
90F-1	122
90F-2	50

b. Only gaseous fuels shall be burned in the affected heaters.

c. i. The Permittee shall install a selective catalytic reduction (SCR) unit on affected heater 1F-1 for the reduction of NO_x emissions.

ii. For the SCR Unit, the Permittee shall operate in accordance with written procedures developed by the Permittee, including periodic inspection, routine maintenance and prompt repair of defects.

1.1.6 Emission Limitations

a. Annual emissions from the affected heaters shall not exceed the following limits. Compliance with annual limits shall be determined on a monthly basis from the sum of the data for the current month plus the preceding 11 months (running 12 month total).

Heater	SO_2 (T/Yr)	NO_x (T/Yr)	VOM (T/Yr)	CO (T/Yr)	PM/PM_{10} (T/Yr)
1F-1	56.9	40.0	11.6	105.8	21.2
1F-2	10.6	51.8	2.2	19.7	3.0
8F-1	6.1	22.8	1.3	11.4	1.7
23F-1	4.8	18.0	1.0	9.0	1.4
87F-103	11.5	42.9	2.4	21.5	3.3
90F-1	14.4	149.6	2.9	26.7	4.1
90F-2	5.9	21.9	1.2	11.0	1.7

b. Monthly emissions from the affected heaters shall not exceed the following limits:

Heater	SO_2 (T/Mo)	NO_x (T/Mo)	VOM (T/Mo)	CO (T/Mo)	PM/PM_{10} (T/Mo)
1F-1	9.5	6.7	1.9	17.6	3.5
1F-2	1.8	8.6	0.4	3.1	0.5
8F-1	1.0	3.8	0.2	1.9	0.3
23F-1	0.8	3.0	0.2	1.5	0.2
87F-103	1.9	7.2	0.4	3.6	0.6
90F-1	2.4	24.9	0.5	4.5	0.7
90F-2	1.0	3.7	0.2	1.8	0.3

1.1.7 Testing Requirements

a. Hydrogen Sulfide Testing

i. In accordance with 40 CFR 60.8, within 60 days after achieving the maximum production rate at which the affected heater 1F-1 will be operated, but not later than 180 days after initial startup of the affected heater 1F-1 and at such other times as may be required by the Illinois EPA, the Permittee shall conduct performance test(s) in accordance with 40 CFR 60.106(e) and furnish the Illinois EPA a

written report of the results of such performance test(s).

ii. For the affected heater 1F-1, the Permittee shall determine compliance with the H_2S standard in 40 CFR 60.104(a)(1) as follows: Method 11, 15, 15A, or 16 shall be used to determine the H_2S concentration. The gases entering the sampling train should be at about atmospheric pressure. If the pressure in the refinery fuel gas lines is relatively high, a flow control valve may be used to reduce the pressure. If the line pressure is high enough to operate the sampling train without a vacuum pump, the pump may be eliminated from the sampling train. The sample shall be drawn from a point near the centroid of the fuel gas line [40 CFR 60.106(e)(1)].

Note: The hydrogen sulfide testing requirement is not necessary if the H_2S content of the fuel gas to the heater is monitored by an existing CEM.

b. Nitrogen Oxides Testing.

Emission testing shall be conducted upon a reasonable request by the Illinois EPA.

1.1.8 Monitoring Requirements

a. i. The Permittee shall comply with the monitoring requirements specified in 40 CFR 60.105(a) for the affected heater 1F-1 by installing, calibrating, maintaining and operating either of the following continuous monitoring systems:

A. An instrument for continuously monitoring and recording the concentration by volume (dry basis, zero percent excess air) of SO_2 emissions into the atmosphere from each affected heater. The monitor shall include an oxygen monitor for correcting the data for excess air; or

B. An instrument for continuously monitoring and recording the concentration (dry basis) of H_2S in fuel gases before being burned in these heaters.

Note: Although only the heater 1F-1 is subject to 40 CFR 60 Subpart J, this

condition requires all affected heaters to be monitored for compliance with the 0.1 gr/dscf standard.

ii. For the affected heater 1F-1, the Permittee shall maintain records of the following items to demonstrate compliance with Condition 1.1.3(b)(ii):

A. For a SO_2 monitor: a record of the concentration by volume (dry basis, zero percent excess air) of SO_2 emissions into the atmosphere; or

B. For a H_2S monitor: a record of the concentration (dry basis) of H_2S in fuel gases before being burned in the heater.

b. i. For the affected heater 1F-1, the Permittee shall install, calibrate, maintain and operate a continuous emissions monitoring system to continuously monitor emissions of NO_x into the atmosphere.

ii. Pursuant to consent decree filed May 11, 2001, within 180 days after installing the SCR on the affected Heater 1F-1, the Permittee shall certify, calibrate, maintain, and operate the CEMS in accordance with the requirements of 40 CFR 60.11, 60.13, and 40 CFR 60, Appendix A, the applicable performance specification test of 40 CFR 60, Appendices B and F. With respect to 40 CFR 60, Appendix F, in lieu of the requirements of 40 CFR 60, Appendix F, Sections 5.1.1, 5.1.3, and 5.1.4, the Permittee shall conduct either a Relative Accuracy Audit ("RAA") or a Relative Accuracy Test Audit ("RATA") once every twelve calendar quarters, provided that a Cylinder Gas Audit is conducted each calendar quarter.

1.1.9 Recordkeeping Requirements

The Permittee shall maintain records of the following items for the affected heaters:

a. Firing rate of the affected heaters (mmBtu/hr, lhv, on a 12-month rolling average);

b. NO_x, CO, VOM, SO_2, PM and PM_{10} emissions from the affected heaters (tons/month and tons/year).

1.1.10 Reporting Requirements

a. For requirements other than NSPS requirements (i.e., emission limits in Condition 1.1.6, etc.), the Permittee shall promptly notify the Illinois EPA of deviations of the affected heaters with the permit requirements as follows. Reports shall describe the probable cause of such deviations, and any corrective actions or preventive measures taken.

b. For affected heater 1F-1, the Permittee shall comply with the reporting requirements specified in 40 CFR 60.107(d), (e) and (f) and 40 CFR 60.105(e)(3).

1.1.11 Operational Flexibility/Anticipated Operating Scenarios

N/A

1.1.12 Compliance Procedures

a. i. Compliance with the SO_2 limits for all affected heaters and the NO_X limit for affected heater 1F-1 in Condition 1.1.6 shall be based on the operating records required by Condition 1.1.9 and the H_2S, SO_2, and NO_X data generated from monitoring in accordance with Condition 1.1.8.

ii. Compliance with the other emission limits in Condition 1.1.6 for the affected heaters shall be based on the operating records required by Condition 1.1.9 and appropriate emission factors. Results from representative stack tests in accordance with the methods described in 1.1.7(b) or in 40 CFR Part 60, Appendix A shall be used in lieu of these emission factors to represent actual emissions.

A. For affected heater 1F-1:

Pollutant	Emission Factor (Lbs/mmBtu, lhv)
CO	0.05
VOM	0.0055
PM/PM_{10}	0.01

B. For affected heater 1F-2:

Pollutant	Emission Factor (Lbs/mmBtu, lhv)
NO_x	0.1315
CO	0.05
VOM	0.0055
PM/PM_{10}	0.0076

C. For affected heaters 8F-1, 23F-1, 87F-103, 90F-2:

Pollutant	Emission Factor (Lbs/mmBtu, lhv)
NO_x	0.1
CO	0.05
VOM	0.0055
PM/PM_{10}	0.0076

D. For affected heater 90F-1:

Pollutant	Emission Factor (Lbs/mmBtu, lhv)
NO_x	0.28
CO	0.05
VOM	0.0055
PM/PM_{10}	0.0076

b. Compliance with the particulate matter emission limitations specified in Condition 1.1.3(c) and (d) is considered inherent in the normal operation of an affected heater firing refinery fuel gas.

2. Operation of the equipment being constructed and/or modified is allowed under this permit until final action is taken on the Clean Air Act Permit Program (CAAPP) application for this source, provided that such CAAPP application has been received and been deemed complete by the Illinois EPA. As a result, the Permittee must still update the CAAPP application to include the aforementioned equipment but is not required to submit an application for a state operating permit in the interim.

Please note that this permit is issued for the construction (and operation) of the equipment listed above. The Permittee should update their CAAPP application to include this new equipment by submitting form 505-CAAPP - "Supplement to CAAPP Application" along with all other appropriate information to accomplish this.

If you have any questions on this permit, please contact Jason Schnepp at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

DES:JMS:jar

cc: Region 1

Attachment 1

PSD Applicability - NO_x Netting Analysis

Contemporaneous Time Period of January 1997 Through January 2002

Table I – Emissions Increases and Decreases Associated With The Proposed Modification

Item of Equipment	Past Actual (Tons/Yr)	Future Potential (Tons/Yr)	Emissions Change (Tons/Year)	Permit Number
1F-1	255.7	40.0	-215.7	01090064
1F-2	44.9	51.8	6.9	01090064
8F-1	11.2	22.8	11.6	01090064
23F-1	10.6	18.0	7.4	01090064
87F-103	32.4	42.9	10.5	01090064
90F-1	85.1	149.6	64.5	01090064
90F-2	10.8	21.9	11.1	01090064
Incremental Emissions	N/a	N/a	13.9	01090064
		Total:	-89.8	

Table II – Source-Wide Creditable Contemporaneous Emission Increases

Item of Equipment	Commencement of Operation Date	Emissions Increase (Tons/Year)	Permit Number
Unicracker Charge Valve Replacement	July 1998	27.1	98030141

Table III – Source-Wide Creditable Contemporaneous Emission Decreases

Item of Equipment	Commencement of Operational Change Date	Emissions Decrease (Tons/Year)	Permit Number
Robinson Optimization Project	November 2001	51.0	99020080

Table IV – Net Emissions Change

	(Tons/Year)
Increases and Decreases Associated With The Proposed Modification	-89.8
Creditable Contemporaneous Emission Increases	27.1
Creditable Contemporaneous Emission Decreases	-51.0
	-113.7

Attachment 2

PSD Applicability - SO_2 Netting Analysis

Contemporaneous Time Period of January 1997 Through January 2002

Table I – Emissions Increases and Decreases Associated With The Proposed Modification

Item of Equipment	Past Actual (Tons/Yr)	Future Potential (Tons/Yr)	Emissions Change (Tons/Year)	Permit Number
1F-1	5.7	56.9	51.2	01090064
1F-2	28.1	10.6	-17.5	01090064
8F-1	0.3	6.1	5.8	01090064
23F-1	0.3	4.8	4.5	01090064
87F-103	0.9	11.5	10.6	01090064
90F-1	0.7	14.4	13.7	01090064
90F-2	0.3	5.9	5.6	01090064
Incremental Emissions	N/a	N/a	3.2	01090064
		Total:	77.1	

Table II – Source-Wide Creditable Contemporaneous Emission Increases

Item of Equipment	Commencement of Operation Date	Emissions Increase (Tons/Year)	Permit Number
Unicracker Charge Valve Replacement	July 1998	15.8	98030141

Table III – Source-Wide Creditable Contemporaneous Emission Decreases

Item of Equipment	Commencement of Operational Change Date	Emissions Decrease (Tons/Year)	Permit Number
Robinson Optimization Project	November 2001	3,359.3	99020080

Table IV – Net Emissions Change

	(Tons/Year)
Increases and Decreases Associated With The Proposed Modification	77.1
Creditable Contemporaneous Emission Increases	15.8
Creditable Contemporaneous Emission Decreases	-3359.3
	-3266.4